

Exhibit 1

Glossary Page from
Molecular Biology of the Cell, 3rd edition,
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chromatid

One copy of a chromosome formed by DNA replication that is still joined at the centromere to the other copy.

chromatin

Complex of DNA, histones, and nonhistone proteins found in the nucleus of a eucaryotic cell. The material of which chromosomes are made.

chromatography

Biochemical technique in which a mixture of substances is separated by charge, size, or some other property by allowing it to partition between a moving phase and a stationary phase.

chromosome

Structure composed of a very long DNA molecule and associated proteins that carries part (or all) of the hereditary information of an organism. Especially evident in plant and animal cells undergoing mitosis or meiosis, where each chromosome becomes condensed into a compact, readily visible thread.

cilium (plural cilia)

Hairlike extension of a cell containing a core bundle of microtubules and capable of performing repeated beating movements. Cilia are found in large numbers on the surface of many eucaryotic cells, and they are responsible for the swimming of many single-celled organisms.

cisterna (plural cisternae)

Flattened membrane compartment, as found in the endoplasmic reticulum or Golgi apparatus.

citric acid cycle (TCA, or tricarboxylic acid cycle; Krebs cycle)

Central metabolic pathway found in all aerobic organisms. Oxidizes acetyl groups derived from food molecules to CO₂ and H₂O. Occurs in mitochondria in eucaryotic cells.

clathrin

Protein that assembles into a polyhedral cage on the cytoplasmic side of a membrane so as to form a clathrin-coated pit, which buds off to form a clathrin-coated vesicle.

cleavage

(1) Physical splitting of a cell into two. (2) Specialized type of cell division seen in many early embryos whereby a large cell becomes subdivided into many smaller cells without growth.

clone

Population of cells or organisms formed by repeated (asexual) division from a common cell or organism. Also used as a verb: "to clone a gene" means to produce many copies of a gene by repeated cycles of replication.

cloning vector

Genetic element, usually a bacteriophage or plasmid, that is used to carry a fragment of DNA into a recipient cell for the purpose of gene cloning.

coated pit

Invagination of the plasma membrane associated with a bristlelike layer of protein on its cytoplasmic surface. Pinches off to form a coated vesicle in the process of endocytosis.

coated vesicle

Small membrane-bounded organelle formed by the pinching off of a coated region of membrane. Some coats are made of clathrin, whereas others are made from other proteins.

codon

Sequence of three nucleotides in a DNA or messenger RNA molecule that represents the instruction for incorporation of a specific amino acid into a growing polypeptide chain.

coenzyme

Small molecule tightly associated with an enzyme that participates in the reaction that the enzyme catalyzes, often by forming a transient covalent bond to the substrate. Examples include biotin, NAD⁺, and coenzyme A.

coenzyme A

Small molecule used in the enzymatic transfer of acyl groups in the cell. (See also **acetyl CoA** and Figure 2-20.)

cofactor

Inorganic ion or coenzyme that is required for an enzyme's activity.

coiled-coil

Especially stable rodlike protein structure formed by two α helices coiled around each other.

collagen

Fibrous protein rich in glycine and proline that is a major component of the extracellular matrix and connective tissues. Exists in many forms: type I, the most common, is found in skin, tendon, and bone; type II is found in cartilage; type IV is present in basal laminae.

combinatorial

Describes any process that is governed by a specific combination of factors (rather than by any single factor), with different combinations having different effects.

complement

System of serum proteins activated by antibody-antigen complexes or by microorganisms. Helps eliminate pathogenic microorganisms by directly causing their lysis or by promoting their phagocytosis.

complementary DNA (cDNA)

DNA molecule made as a copy of mRNA and therefore lacking the introns that are present in genomic DNA. Used to determine the amino acid sequence of a protein by DNA sequencing or to make the protein in large quantities by cloning followed by expression.

complementary nucleotide sequence

Two nucleic acid sequences are said to be complementary if they can form a perfect base-paired double helix with each other.

complex

Assembly of molecules that are held together by noncovalent bonds. Protein complexes perform most cell functions.

conformation

Spatial location of the atoms of a molecule—for example, the precise shape of a protein or other macromolecule in three dimensions.

connective tissue

Any supporting tissue that lies between other tissues and consists of cells embedded in a relatively large amount of extracellular matrix. Includes bone, cartilage, and loose connective tissue.

connexon

Water-filled pore in the plasma membrane formed by a ring of six protein subunits. Part of a gap junction connexons from two adjoining cells join to form a continuous channel between the two cells.